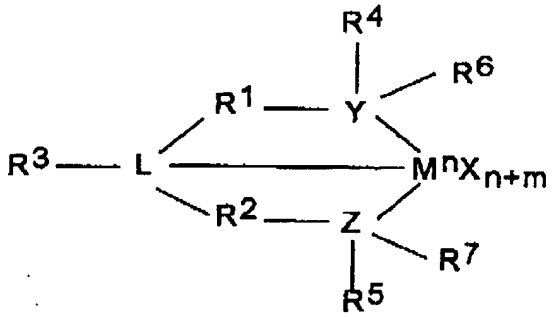
wherein said first catalyst component and said second catalyst component are added to a polymerization reactor in one of a slurry, a suspension or a dispersion.

36. (New) The process of claim 35, wherein said wherein said metallocene compound is represented by the formulae:

$$L^A L^B MQ_n \quad \text{(III)}$$

where M is a Group 4, 5, or 6 metal atom; L^A and L^B, comprise unsubstituted or substituted, cyclopentadienyl ligands or cyclopentadienyl-type ligands, heteroatom substituted and/or heteroatom containing cyclopentadienyl ligands bonded to M, L^A and L^B may be the same or different, L^A and L^B are each bonded to M; Q is a monoanionic ligand, n is 0, 1 or 2, such that formula (III) represents a neutral metallocene catalyst compound.

37. (New) The process of claim 36, wherein said wherein said first catalyst component is represented by the formulae:



where M is zirconium, each X is independently an alkyl leaving group, n is the oxidation state of M,

m is the formal charge of the ligand comprising Y, Z and L,

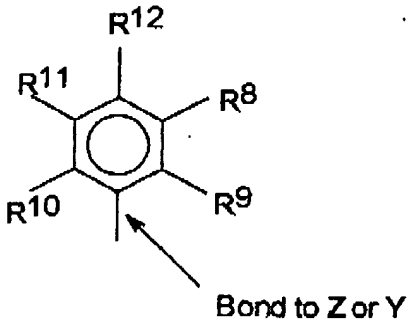
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L, Y and Z are nitrogen,

R^1 and R^2 are independently —CH_2— CH_2—,

R^3 is hydrogen,

wherein R^4 and R^5 are represented by the formula



wherein

R^8 to R^{12} are methyl groups; and

R^6 and R^7 are absent.

38. (New) The process of claim 37, wherein said process further comprises combining said first and said second catalyst components, a support, and alumoxane;

wherein said olefin(s) comprise one or more of ethylene, butene-1, hexene-1, octene-1, or combinations thereof, wherein the mole ratio of comonomer to ethylene, C_x/C_2, where C_x is the amount of comonomer and C_2 is the amount of ethylene, is between 0.002 to 0.008; and

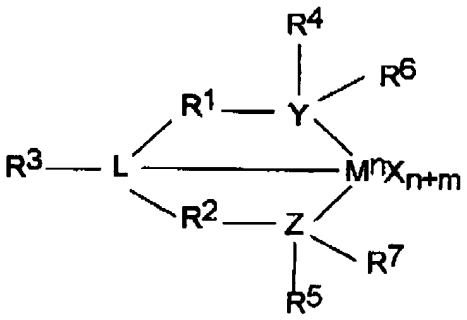
wherein said process further comprises producing a polymer from said polymerization of olefin(s), said polymer comprising an ethylene polymer or copolymer comprising a residual metal content of 5.0 ppm zirconium or less, an I_2 of from 0.01 to 10 dg/min., an I_{21} of from 1 to 10dg/min., a density from 0.930 to

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0.970 g/cm^3, Mw/Mn of between 20 and 60, and a I_{21}/I_2 greater than or equal to 80.

39. (New) The process of claim 38, wherein said first catalyst component and said second catalyst component are mixed off-line, and then fed to a polymerization reactor, wherein said first catalyst component and said second catalyst component are present in said polymerization reactor in a molar ratio of 20:80 to 80:20, wherein the process further comprises raising or lowering a reaction temperature in the polymerization reactor to narrow or broaden the Mw/Mn of a polymer produced by said olefin(s) polymerization process, respectively, and wherein said process further comprises adding a slurry of aluminum distearate in mineral oil into the reactor separately from, or with said first and said second catalyst components, said activator and said support.

40. (New) A polymerization process comprising, combining ethylene and one or more other olefin(s), a first catalyst component, a second catalyst component, an activator, and a support, said first catalyst component represented by the formula:



wherein

M is a Group 3 to 7 metal,

each X is independently a leaving group

n is the oxidation state of M,

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m is the formal charge of the Y, Z and L
L is a Group 15 or 16 element,
Y is a Group 15 element,
Z is a Group 15 element,
R^1 and R^2 are independently a C_1 to C_{20} hydrocarbon group, a heteroatom containing group having up to twenty carbon atoms, silicon, germanium, tin, lead, or phosphorus,
R^3 is absent or a hydrocarbon group, hydrogen, a halogen, a heteroatom containing group,
R^4 and R^5 are independently an alkyl group, an aryl group, substituted aryl group, a cyclic alkyl group, a substituted cyclic alkyl group, a cyclic arylalkyl group, a substituted cyclic arylalkyl group or multiple ring system,
interconnected to each other, and
R^6 and R^7 are independently absent, or hydrogen, an alkyl group, halogen, heteroatom or a hydrocarbyl group, said second catalyst component comprising a metallocene compound and wherein said first catalyst component and said second catalyst component are added to a polymerization reactor in one of a slurry, a dispersion or a suspension, and wherein said first catalyst component and said second catalyst component are mixed off-line, and then fed to a polymerization reactor.

41. (New) The process of claim 40, further comprising adding an activator selected from alumoxane, a modified alumoxane, non-coordinating ionic activators, non-coordinating neutral activators, and combinations thereof, and said process further comprising combining said catalysts and the activator on, depositing on, contacting with, incorporating within, adsorbing, or absorbing in, a support.

42. (New) The process of claim 41, wherein said first catalyst component and said second catalyst component are combined with said activator prior to introduction in to said polymerization reactor, wherein said olefin(s) comprise one or more of

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ethylene, propylene, butene-1, pentene-1, 4-methyl-pentene-1, hexene-1, octene-1, decene-1, 3-methyl-pentene-1, 3,5,5-trimethyl-hexene-1, or combinations thereof; wherein said process further comprises producing a polymer from said polymerization of olefin(s), and said polymer comprising an ethylene polymer or copolymer comprising a residual metal content of 5.0 ppm zirconium or less, an I_2 of from 0.01 to 10 dg/min., an I_{21} of from 1 to 10dg/min., a density from 0.930 to 0.970 g/cm^3, Mw/Mn of between 20 and 60, and a I_{21}/I_2 greater than or equal to 80.

43. (New) The process of claim 42, wherein said wherein the second catalyst component comprises a metallocene compound of the general formula

$$L^AL^BMQ_n \text{ or } L^AAL^BMQ_n$$

wherein M is a Group 4, 5 or 6 metal atom,
L^A and L^B are selected from the group consisting of cyclopentadienyl, tetrahydroindenyl, indenyl, fluorenyl, and substituted versions thereof, L^A and L^B are each bonded to M;
each Q is a monoanionic leaving group,
A is a divalent bridging group containing at least one Group 13 to Group 16 atom; and
n is 0, 1 or 2.

44. (New) The process of claim 42, wherein said metallocene compound is represented by the formulae:

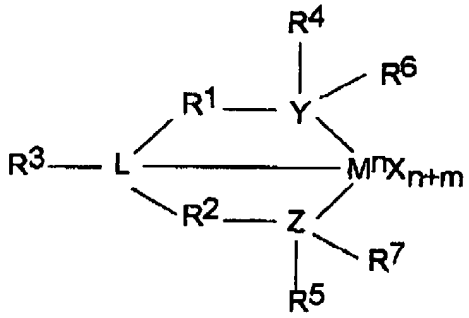
$$L^AL^B MQ_n \quad \text{(III)}$$

where M is a Group 4, 5, or 6 metal atom; L^A and L^B, comprise unsubstituted or substituted, cyclopentadienyl ligands or cyclopentadienyl-type ligands, heteroatom substituted and/or heteroatom containing cyclopentadienyl ligands

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bonded to M, L^A and L^B may be the same or different, L^A and L^B are each bonded to M; Q is a monoanionic ligand, n is 0, 1 or 2, such that formula (III) represents a neutral metallocene catalyst compound wherein said activator is selected from methyl alumoxane, modified methyl alumoxane, or combinations thereof; and wherein said olefin(s) comprise one or more of butene-1, hexene-1, octene-1, or combinations thereof, wherein the mole ratio of comonomer to ethylene, C_x/C_2, where C_x is the amount of comonomer and C_2 is the amount of ethylene, is between 0.002 to 0.008.

45. (New) The process of claims 40 or 44, wherein said first catalyst component is represented by the formulae:



wherein

M is a Group 4 metal,

each X is independently a leaving group,

n is the oxidation state of M,

m is the formal charge of the ligand comprising Y, Z and L,

L is a Group 15 element,

Y is a Group 15 element,

Z is a Group 15 element,

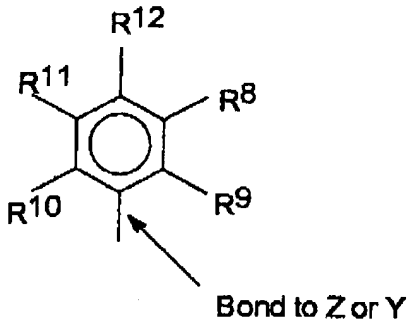
R^1 and R^2 are independently a C_1 to C_{20} hydrocarbon group, or a heteroatom containing group having up to twenty carbon atoms, the heteroatom selected from the group consisting of silicon, germanium, tin, lead, and phosphorus; wherein

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optionally, R^1 and R^2 are interconnected to each other, and/or R^4 and R^5 may be interconnected to each other,

R^3 is absent, a hydrocarbon group, a hydrogen, a halogen, or a heteroatom containing group,

wherein R^4 and R^5 are represented by the formula



wherein

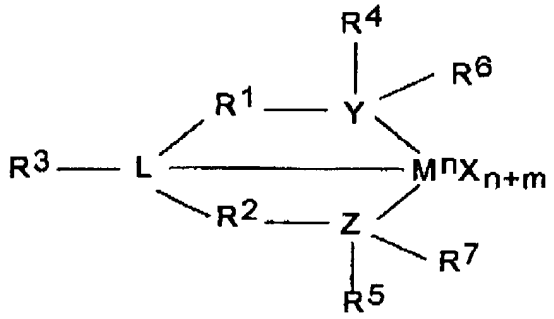
R^8 to R^{12} are each independently hydrogen, a C_1 to C_{40} alkyl group, a halide, a heteroatom, a heteroatom containing group containing up to 40 carbon atoms, wherein any two R groups may form a cyclic group and/or a heterocyclic group, and wherein the cyclic groups may be aromatic, and

R^6 and R^7 are independently absent, hydrogen, an alkyl group, halogen, heteroatom or a hydrocarbyl group;

wherein a polyolefin is produced; and wherein the melt index (I_2) of the polyolefin is changed by altering the amount of the second catalyst component relative to the amount of the first catalyst component.

46. (New) The process of claims 40 or 44, wherein said first catalyst component is represented by the formulae:

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where M is zirconium, each X is independently an alkyl leaving group, n is the oxidation state of M,

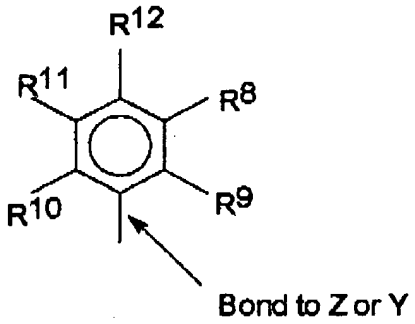
m is the formal charge of the ligand comprising Y, Z and L,

L, Y and Z are nitrogen,

R^1 and R^2 are independently —CH_2—CH_2—,

R^3 is hydrogen, and

wherein R^4 and R^5 are represented by the formula



wherein
R^8 to R^{12} are methyl groups;

R^6 and R^7 are absent.

47. (New) The process of claim 45, wherein said first catalyst component and said second catalyst component are present in said polymerization reactor in a molar

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